



PATENT APPLICATION  
MO6676  
LeA 34,925

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN APPLICATION OF	)	
STEFFEN HOFACKER ET AL.	)	EXAMINING GROUP NO: 1711
SERIAL NO.: 10/054,558	)	
FILED: JANUARY 22, 2002	)	EXAMINER: MELANIE D. BISSETT
TITLE: PROTECTIVE COVERING WITH	)	
A TWO-LAYER COATING BUILDUP	)	

**DECLARATION UNDER 37 C.F.R. §1.132**

I, Michael Mager, residing in Leverkusen, Germany, hereby declare as follows:

- 1) I studied chemistry at the University of Darmstadt from 1985 to 1991
- 2) I received the degree of doctor of chemistry at the University of Darmstadt in the year 1993
- 3) I have been employed by Bayer AG, D-51368 Leverkusen, Germany, since 1994
- 4) I have been working in the research field of sol-gel coatings since 1994
- 5) I am not a named inventor of the invention described in the captioned application, but I am familiar with the subject matter therein, and with the subject matter in WO 01/98393 (BASF), US 4,292,350 (Kubitza), US 6,265,029 (Lewis) and CA 2 267 052 (Bayer), cited in the present office action.
- 6) Under my direction and control, the following experiments were carried out to

demonstrate the surprising result provided by the use of specific solvents in the protective covering of the present invention. As demonstrated below, the solvents used in the present invention provide excellent adhesion of the protective covering to a polycarbonate surface, while solvents commonly used in the BASF provide poor adhesion to this substrate. This result could not have been predicted, based on the teachings of the cited references, alone or in combination.

### **Comparison experiments**

#### **a) Synthesis of the silane modified polyisocyanate:**

64.7 g of Desmodur Z 4470 were diluted with 16.4 g of n-butylacetate and cooled to 0 °C. Within 3 h, 6.9 g of 3-aminopropylmethyldiethoxysilane in 16.4 g of n-butylacetate were added to the stirred solution of the Desmodur Z 4470 in n-butylacetate. The reaction temperature was kept between 0 and 5 °C. After a NCO content of 5.79 % was obtained, the product was allowed to warm to room temperature. A clear solution with a NCO content of 5.79 % was obtained.

#### **b) Synthesis of polyol mixtures in various solvents:**

The polyol mixtures b1) to b5) were obtained by mixing 1.04 g of Desmophen 670 BA, 2.48 g of Desmophen 800, 0.11 g of zinc(II)bis(2-ethylhexanoate), 0.58 g n-butylacetate and 45.8 g of one of the following solvents:

b1) toluene

b2) n-butylacetate

b3) methylethylketone (2-butanone)

b4) ethylacetate

b5) diacetone alcohol

#### **c) Preparation of the coating (primer) formulation:**

10 g of each of the polyol mixtures b1) to b5) were diluted with 30 g of the appropriate solvent (e.g., toluene for b1), n-butylacetate for b2), etc.) and 2.47 g of

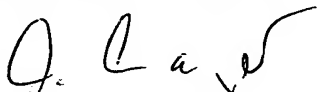
the polyisocyanate a) were added. The resulting primer formulations are noted as c1) to c5).

**d) Application on polycarbonate sheets:**

Before primer application, the polycarbonate sheets were cleaned in an ultrasound bath (about 1 % tenside) and were then rinsed with isopropanol. After this, the primer formulations c1) to c5) were applied on the polycarbonate sheets (7.5 x 15 cm size) using flow application. After the application with the primers c1) to c4), the surface of the polycarbonate sheets was completely destroyed (intransparent). Only the formulation c5) resulted in a transparent surface, and after curing (30 min 110 °C) a good adhesion of the primer was observed (cross cut test).

The undersigned Declarant declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States code and that such willful false statements may jeopardize the validity of pending Application Serial Number 10/054,558 or any patent issuing thereon.

Signed this 23<sup>rd</sup> day of November 2005.

  
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Dr. Michael Mager